

Amendments to the Claims

21. **(Currently amended)** An elongated drive string assembly comprising a plurality of hollow sucker rods and connecting elements with an axis, connected together and between a drive head located at the surface of an oil well and a rotary pump located deep down the oil well, wherein each hollow sucker rod has at least a first end comprising an internal female threaded surface engaging an external male threaded surface on a connecting element, wherein said threads are frusto-conical and non-symmetrical, but differential in diametral taper to each other; the first end of each hollow sucker rod further comprising an annular torque shoulder engaging an annular torque shoulder on the connecting element, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder on the connecting element (DHT), the following ratios are maintained:

| Diameter Ratios | <u>Range</u> | |
|-----------------|--------------|------|
| | Min. | Max. |
| DHT/DEN | 0.60 | 0.98 |
| DIN/DEN | 0.15 | 0.90 |
| DIN/DHT | 0.25 | 0.92 |

wherein each connector element is a separate nipple connector element having said male threaded surface ~~substantially conical threads with male threads~~ on at least one ~~each free end of the nipple with the free ends~~ separated by a central section defining a pair of torque shoulders, and ~~each~~ said at least one nipple free end further comprises ~~incomplete~~ complete threads on said male threaded surface that are adapted to engage against a shoulder of the rod, so as to define a seal between the inner bore and the threads.

22. **(Currently amended)** An elongated drive string assembly according to Claim 21, wherein both ~~extremes~~ free ends of a each nipple are conical and externally threaded, and there is a conical inner bore within and proximate the length of each threaded ~~extreme~~ free end so as to create ~~creates an advantageous combination of structure, to ensure~~ an increasing cross-section of the nipple from each free end of the nipple towards the central section[,] and the torque shoulder locations, wherein ~~the said conical inner bores open~~ of the nipple is conical and opening towards each free end, there is an external cylindrical zone between each free end and the beginning of the threaded surface on that ~~the threads and the~~ free end which defines said seal between the inner bore and the threads.

23. **(Currently amended)** An elongated drive string assembly comprising a plurality of hollow sucker rods and connecting elements with an axis, connected together and between a drive head located at the surface of an oil well and a rotary pump located deep down the oil well, wherein each hollow sucker rod has at least a first end comprising an internal female threaded surface engaging an external male threaded surface on a connecting element, wherein said threads are frusto-conical and non-symmetrical, but differential in diametral taper to each other; the first end of each hollow sucker rod further comprising an annular torque shoulder engaging an annular torque shoulder on the connecting element, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder on the connecting element (DHT), the following ratios are maintained:

| Diameter Ratios | <u>Range</u> | |
|-----------------|--------------|------|
| | Min. | Max. |
| DHT/DEN | 0.60 | 0.98 |
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| DIN/DHT | 0.25 | 0.92 |

wherein ~~the rod sections~~ hollow sucker rods located proximate to each extreme end of the string ~~each~~ have a plurality of holes extending through ~~the rod wall of said sections~~ wall sections defining a bore in said rods so as to enable fluid flowing outside of the rod to also flow within said bore and between the extreme ends.

24. **(Currently Amended)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes are drilled radially through said wall sections of sucker rods ~~the rod wall~~, proximate to each extreme end of the string.

25. **(Currently Amended)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes ~~through the rod wall and~~ are arranged in a symmetrical fashion about the centerline of the rod, in the wall sections of sucker rods proximate to each extreme end of the string.

26. **(Currently Amended)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in sets of one to three holes at specific ~~tranverse~~ transverse sections spaced along the centerline of the rod, in the wall sections of sucker rods proximate to each extreme end of the string.

27. **(Currently Amended)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in a helicoidal path about the centerline of the rod, in the wall sections of sucker rods proximate to each extreme end of the string.

28. **(Currently Amended)** A connecting element adapted to engage a hollow sucker rod along an axis, wherein an external male threaded surface on the connecting element is proximate at least one free end and adapted to engage a hollow sucker rod first end comprising an internal female threaded surface which is complementary but differential in diametral taper to the male threaded surface and both threaded surfaces have threads which are frusto-conical and non-symmetrical; the connecting element further comprising ~~an~~ at least one annular torque shoulder adapted to engage an annular torque shoulder on the hollow sucker rod first end ~~of a hollow sucker rod~~, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder of the connecting element (DHT), the following ratios are maintained:

| Diameter Ratios | Range | |
|-----------------|-------|------|
| | Min. | Max. |
| DHT/DEN | 0.60 | 0.98 |
| DIN/DEN | 0.15 | 0.90 |
| DIN/DHT | 0.25 | 0.92 |

wherein said connecting element further comprises ~~substantially conical threads with~~ male threads on each end separated by a central section defining a pair of torque shoulders, and each ~~nipple~~ connecting element ~~free end~~ male threaded surface further comprises ~~incomplete~~ complete threads that are adapted to engage against a shoulder of a rod, so as to define a seal between ~~the~~ an inner bore of said hollow rod and the threads.

29. **(Currently Amended)** A connecting element according to Claim 28, wherein ~~the~~ a bore of the ~~nipple~~ connecting element is conical and opening towards each free end, and there is an external cylindrical zone between at least one ~~each~~ free end and ~~the~~ a beginning of the male threaded surface ~~threads and proximate that~~ the free end which further defines said seal between the inner bore and the threads.

30. **(Currently Amended)** A hollow sucker rod adapted to engage a connecting element along an axis, wherein the hollow sucker rod comprises a wall surrounding an inner bore and has at least a first end comprising an internal female threaded surface adapted to engage an external male threaded surface of a connecting element, which is complementary but differential in diametral taper to the female threaded surface; said first end of the hollow sucker rod further comprising an annular torque shoulder adapted to engage an annular torque shoulder of a connecting element, and being characterized in that, for an outside diameter of a connecting element (DEN), an internal diameter (DIN) of a connecting element, and a starting diameter of the torque shoulder of a connecting element (DHT), the following ratios are maintained:

| Diameter Ratios | Range | |
|-----------------|-------|------|
| | Min. | Max. |
| DHT/DEN | 0.60 | 0.98 |
| DIN/DEN | 0.15 | 0.90 |
| DIN/DHT | 0.25 | 0.92 |

wherein a each rod ~~section~~ that is adapted to be located proximate to ~~each~~ an extreme end of a string has a plurality of holes through ~~the rod~~ a portion of the rod wall ~~of that section~~, to enable fluid flowing outside of the rod to also flow within said bore.

31. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes are drilled radially through the rod wall.

32. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes through the rod wall are arranged in a symmetrical fashion about the centerline of the rod.

33. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in sets of one to three holes at specific ~~transverse~~ transverse sections spaced along the centerline of the rod.

34. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in a helicoidal path about the centerline of the rod.